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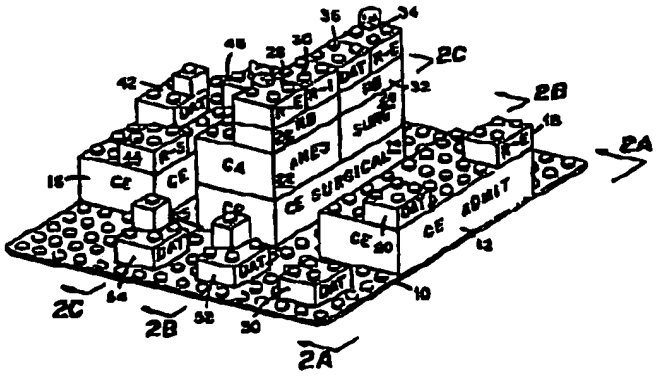

(57) Abstract

A method for the administration of health care resources (18, 26, 28, 30, 32, 34, 44) within a health care facility on a per procedure basis (12, 14, 16, 22, 24) employing a computer generated model (10).

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METHOD FOR THE ADMINISTRATION OF HEALTH CARE EMPLOYING A COMPUTER GENERATED MODEL

FIELD OF INVENTION

This invention relates to methods for the administration of health care in a health care network, and particularly to the administration of the treatment of a given patient for a given medical diagnosis. The health care network may be a hospital alone, or may include a continuation of the treatment of the patient at a location remote from the hospital, such as home care as a follow-on aspect of the treatment.

BACKGROUND OF INVENTION

Heretofore, it has been common in health care facilities to administer health care on a cost reimbursement basis. Under this system, each department or unit of the health care facility was made aware of the patient population and each department made its own arrangements for accommodating this patient population. In the end, the costs incurred within each of the various departments were, in general, grouped together and allocated over the patient population. This method has been attacked by private payors and third party payors as resulting in unacceptable costs for the provision of health care. As a consequence, there has been, and is ongoing, examination of the methods employed in the administration of health care, particularly at the level of a health care facility, such as a hospital.

A relatively recent method for administration of the care of a patient in a health care facility employs the concept of compiling a listing of the care events which are to take place for a given medical diagnosis and to distribute this listing to the various departments or units within the health care facility to alert these departments or units of their respective responsibilities with respect to a given patient admitted to the health care facility for treatment for the given medical diagnosis. A listing associated with this method is commonly referred to as a "clinical pathway". Some clinical pathways are relatively detailed as to the responsibilities of the various departments or units within the health care facility. However, these prior clinical pathways suffer from their inflexibility. Provision for conditional factors that may occur during the course of the administration of the treatment regimen, hence reconstruction of the clinical pathway in the event of changes due to patient reaction to treatment, etc. are either nonexistent or at best cumbersome and slow to effect. Similarly, this concept is directed almost exclusively to the resources provided by the health care facility itself and fails to account for certain resources which are supplied to, but do not originate within the health care facility. Therefore, even though the clinical pathway concept has been found to reduce the costs of patient care within a health care facility, its shortcomings have limited its implementation.

It is therefore an object of the present invention to provide a method for the administration of a treatment regimen for a given medical diagnosis, particularly as applied to a given patient.

It is another object to provide a method for administration of a treatment regimen for a given medical diagnosis which employs a model of the treatment regimen, and wherein the model is flexible with respect to the creation of the treatment regimen and to changes in the treatment regimen at any time during the administration of the treatment regimen.

Other objects and advantages of the present invention will be recognized from the description contained herein, including the claims and drawings, in which:

Figure 1 is a pictorial representation of a model which depicts various features of the present invention;

Figure 2 is an exploded view of the model depicted in Figure 1; and ,

Figure 3A and 3B are a flow diagram depicting various steps of the present invention.

SUMMARY OF INVENTION

In accordance with the method of the present invention, in the administration of health care for a given medical diagnosis, particularly for a given patient, there is identified a virtual platform which is representative of the medical diagnosis for the patient. This platform provides primarily an identification of the treatment regimen for the given patient, for a given medical

diagnosis, irrespective of constants or variables which go to make up a medical treatment regimen for the given medical diagnosis. Upon this platform, according to one aspect of the present invention, there is constructed a series of care events which are to be associated with the treatment regimen for the given medical diagnosis. The resources which are to be brought to bear as a part of the treatment regimen for the given medical diagnosis are identified and associated with an appropriate care event, including physical facilities of the health care facility, human resources, medical supplies, instrumentation, etc. Each of these care events and each of the resources is provided with a unique identifier which is suitable for manipulation employing a computer. In selected instances the resources may be grouped as "resource bundles" (e.g., a plurality of disposable surgical supplies) or "care activities" (e.g., intubation, including equipment, supplies, personnel, etc.) Within the computer, each of the care events and each of the resources is treated as an object. Objects to be associated with a given treatment regimen are selected for incorporation into the treatment regimen for a given medical diagnosis and compiled to develop a model which can be provided in visual form for the guidance of the health care workers of a health care facility in carrying out the treatment regimen.

In accordance with another aspect of the present invention, the platform for a given medical diagnosis is supplied with data which is global with respect to the medical diagnosis. This data may include such information as the necessity of and times for checking the patient's blood pressure, for the taking of blood samples, etc. during the course of the patient's stay in the facility. Further, the platform is supplied with data

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representative of patient identification and medical history, current medical data relating to the patient, such as weight, current blood pressure, etc.

Contrary to prior art methods of administration of health care to a given patient for a given medical diagnosis, in the present invention, the platform may be provided with a plurality of conditional factors relating to possible patient-specific information. For example, if a patient is obese, the treatment regimen often will require additional and/or different identifiable supplies, or additional human resources, or different dietary requirements. In the present method, this information is provided to the platform by means of conditional factors that are selected and thereby made nonconditional. Once made nonconditional, these factors are available for incorporation into the model. Conditional factors may be global in that they apply across the entire spectrum of the treatment regimen, or they may be specific to a given care event or resource. In the latter instance, the present method provides for the presentation of conditional factors at any desired location within the model, and importantly, provides for the recompilation of the model each time a conditional factor is made nonconditional, thereby providing for distribution throughout the model (or remaining portion thereof) of the resultant(s) of making the factor nonconditional. This flexibility of recompiling the model permits the health care facility to immediately respond to situations which arise in the course of administration of the treatment regimen. These situations may be planned for in advance and a proper response may be preset in the computer, or they may be unexpected in which event the health care worker can add to the model the resources which are proper

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for meeting the unexpected situation, and th n recompile the model to provide revised instructions for care of the patient. This ability of the present invention is made possible by treating each of the care events and each of the resources available in a health care facility as objects, each of which possesses a unique identifier and, as appropriate, properties. These properties may include such things as time, space, quantity, name, monetary cost, etc. Within a computer, these objects, with their properties, may be manipulated readily and rapidly at any point in time during the treatment regimen to present immediately to the health care worker a revised version of the model that includes modifications in the treatment regimen which are dictated by input to the model by the health care worker, such as by making a conditional factor nonconditional. Through the means of a computer network within the health care facility, any modifications to the initially developed treatment regimen may be instantly made known throughout the network, and, if needed, to alert certain departments of the health care facility to take emergency action.

In accordance with another aspect of the present method, there are provided steps through which data items may be entered into the model as the treatment regimen is implemented. For example, as the results of blood tests on a patient become available, these results may be entered into the model as data and thereby be available for a variety of purposes, such as calling attention to a trend in white blood cell counts, etc. Further, the present method provides for the recordation, and immediate availability to other health care workers, of various treatments such as the administration of medication, the recording of a surgical procedure, etc. As a consequence, the

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final compiled model represents a full record of the treatment regimen that is actually experienced by the patient during the duration of their care by the health care facility. By assigning a cost property to each resource, the final compiled model can provide the health care facility with its actual cost of providing the treatment regimen. Obviously such cost information may be useful for various purposes, such as invoicing for the services provided.

DETAILED DESCRIPTION OF INVENTION

In Figure 1 there is presented a physical representation of a computer generated model of a treatment regimen for a given medical diagnosis. The model of Figures 1 and 2 is not necessarily the output from a computer, for the output from a computer more commonly is in the form of a printed set of information or instructions, or combination thereof. However, the model depicted in Figures 1 and 2 can be very useful in demonstrating to health care workers a particular treatment regimen and the responsibilities which the model assigns to them or their department. The model further may be employed to explain to a patient the treatment regimen which is anticipated during their stay in the health care facility.

Referring to Figure 1 specifically, the depicted model comprises a platform 10, which in the computer comprises a virtual platform. The platform represents a given medical diagnosis and a unique identifier, which is manipulatable by a computer, is assigned to the platform. Onto this platform there is constructed a series of care events 12, 14, and 16, each being assigned a unique identifier which is manipulatable by the

computer. This identifier identifies to the computer the care event. Additionally, properties may be assigned to the care event. These properties are dependent upon the information desired to be associated with the care event. For example, the care event 12 is labeled CE ADMIT in Figures 1 and 2. This is the care event during which a patient is admitted to the health care facility. Its properties may include such information as time of admission, the sequence of the care event within the treatment regimen, etc. In addition to its unique identifier, the CE ADMIT care event is assigned a human resource 18, labeled R-E in the Figures. This human resource has assigned to it properties such as identification of the resource (name and/or job title of the human resource), and the cost of the human resource. Further, since the CE ADMIT care event involves collection and recording of data, a DAT resource object 20 is associated with the CE ADMIT care event. This data may include such items as preadmission physical examination results for the patient, identification of the patient, etc.

In the depicted model there is provided a surgical care event 14 which is labeled CE SURGICAL in Figures 1 and 2. In addition to its unique identifier, this care event may have assigned to it one or more care activities (CA) such as anesthesia (ANES) 22 and surgery (SURG) 24. The ANES care activity has assigned to it a resource bundle object (RB) 26 containing supplies required to carry out the anesthesia care activity. Further, there is assigned to the ANES care activity a human resource object (R-E) 28 and an instrument resource object (R-I) 30. The SURG care activity 24 has assigned to it a resource bundle (RB) 32, a human resource (R-E) 34 and a data object (DAT) 36. This DAT object provides for recordation of

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various activities associated with the surgical procedure, including a record of the surgical activity, the patient's vital signs during surgery, etc.

In the depicted model there is further included a discharge care event (CE-DISCHARGE) 40. To this care event there is assigned a DAT object 42, and one or more supply resource objects (R-S).

Additionally, the platform may be provided with one or more DAT objects 50, 52 and 54, as needed, for accepting and recording data associated with the treatment regimen and which is global to the treatment regimen, as opposed to being specific for a care event. For example, information relating to the identification of the medical diagnosis may be added to the platform via the DAT object 50. In Figures 1 and 2, the actual data is represented by the objects 51, 53 and 55. Additional data representative of global information relating to the medical diagnosis or global information relating to the treatment regimen is added to the platform as further DAT object 52. As required, still further global information, such as patient identification may be added to the platform via further DAT object 54. It is to be recognized, however, that because all the objects associated with the treatment regimen are linked via the platform, information associated with any object is readily available for use in association with any other object on the platform. Further, each object is an independent entity in that it can be removed from the platform at any time, replaced with another object which may be like or different from the removed object, or the same object may be assigned to different care events. For example, the surgeon may have a function following surgery which is in

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addition to his function during surgery. Additional objects can be added to the platform as the tr atment procedure progresses and medical situations, either anticipated or unanticipated, occur which require modification of the treatment regimen.

In practice, each of the platform, the care events, the care activities, the resources, the data, and their respective assigned identifiers and properties constitute information to be input into the memory of a computer. As noted above, there must be identified each resource that is available to the health care facility and each resource must be assigned a unique identifier, such as an alpha, numeric or alpha/numerical identifier. As appropriate, each resource and each care event may be assigned properties. This information is also entered into the computer and follows the resource wherever the resource is positioned in a treatment regimen. By association, some resources will follow one or more care events wherever the care events are positioned in a treatment regimen. From the information within the computer relating to care events and resources, the health care facility selects those care events and/or resources which are to be brought to bear in the course of carrying out a treatment regimen for a given medical diagnosis. As noted above, within the computer each care event and each resource is treated as an object. Employing the unique identifiers for the care events and resources selected by the health care facility for inclusion in a treatment regimen for a given medical diagnosis, within the computer, the selected objects are compiled. This compilation activity is depicted in Figures 2A - 2C. As depicted in Figure 2A, for the depicted given platform 10, (a given medical diagnosis), there is selected a CE ADMIT care event 12. The DAT object 20 and R-E object 18

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are selected for association with the care event 12. As depicted in Figure 2B, a CE SURGICAL care event 14 is selected for adding to the platform. An ANES care activity 22 and a SURG care activity 24 are selected for association with the care event 14. Further, RB resource bundles 26 and 32 are selected and associated with the ANES and SURG care activities, respectively. Still further, a R-E object 28 (e.g., an anesthetist) and a R-I (resource instrumentation) object 30 are selected and associated with the ANES care activity 22. A further R-E object 34 (e.g., a surgeon) and a DAT object 36 are selected and added to the SURG care event 24. As depicted in Figure 2C, a CE DISCHARGE care event 16 is selected and associated with the platform 10. In support of this care event, there is selected and associated with the CE DISCHARGE care event 16 an R-S object 44, a R-E object 46 and a DAT object 42. DAT objects 50, 52, and 54 are selected, as needed, and associated with the platform as global objects having information which is useful throughout the platform.

In the present invention, one or more factors relating to the treatment regimen may be made conditional. That is, the present method provides, for example, that if the surgeon is to be Dr. Jones (a human resource object) and the treatment regimen is a Lap Choly Diagnostic with possible Lap Choly procedure, provision is made for automatic inclusion in the model of those supply resource objects that Dr. Jones requires, or if the surgeon is to be Dr. Smith, provision is made for automatic inclusion in the model of those supply resource objects which Dr. Smith requires, all to the exclusion of a "standard" grouping of supply resources. Selection of Dr. Jones or Dr. Smith is a "conditional event". Selection of Dr. Jones as the surgeon makes his associated listing of supply resource objects

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"nonconditional", thereby excluding the inclusion in the model of either the standard or default listing of supply resource or the listing of supply resource objects which are associated with Dr.Smith. Conditionals of this nature are included in Table I as "CR1010-- if ([surgeon] = "Jones")" and "CR1020-- if (["'51.23' found in [ICD-9])". The latter conditional refers to the possibility that the Lap Diagnostic (ICD-9) becomes a Lap Choly Procedure (51.23), and when made nonconditional, results in inclusion in the model of supply bundle object SB-OM12883538(C) and its associated supply objects OM22990EEP05 and OM22990EAA05. In like manner, selection of Dr. Jones converts this conditional to nonconditional and results in the inclusion in the model of supply bundle object SB-HO522835 and its associated supply objects HO33725, HO33857 and HOLKR12. On the other hand, if Dr. Jones is not selected, the conditional results in the inclusion in the model of the "standard" (default) supply bundle object SBHO522837 and its associated supply bundle objects HO33750 and HO885665.

Referring to Figure 3, typically the method of the present invention comprises the steps of identifying the resources employed in or by the health care facility and assigning a unique identifier and/or properties to each identified resource. The identifier, as well as the properties assigned to the resource, as noted above, may be an alpha, numeric or alpha/numerical identifier which is manipulatable by a computer. These identifiers are stored within the computer's memory in a manner which makes them accessible to the computer for manipulation, such as in a database. A resource may be an item of supply, an instrument, a health care worker, a consulting physician, a surgical suite, or any other resource which may be brought to

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bear in the implementation of a treatment regimen for a patient in the health care facility. The resource may be supplied by the health care facility or may be supplied from a source outside the facility. Once identified, the resource is treated within the computer as an object. This object is independent of every other object except as it may be assigned one or more properties which associate it with one or more other objects. This treatment of the resource and its properties is important to the present invention in that it permits the computer to include the resource, or multiples of the resource, in any location on any platform unless the object is specifically designated for use with some other object or platform. Further, once an object is associated with another one or more objects, selection of the object carries with its selection its association with other objects. For example, a scalpel is a resource. It may be used in any of many locations within a health care facility, such as in an emergency room, in a day surgery department, or in a surgical suite. This object, therefore, would be assigned a unique identifier, but would not likely be assigned a property which associated the scalpel with any other object, but rather when selecting resources for a given treatment regimen, the scalpel resource would have to be specifically selected, and associated with, the given treatment regimen at a proper location within the regimen. On the other hand, since the scalpel is treated as an object, it is available to be included as an object within a bundle of resources selected for association with a particular care event (another object). Some care events are applicable to one or more treatment regimens, hence are available for inclusion in different platforms. Further, if during the course of administration of the treatment regimen it was determined that a scalpel was needed, but it had not theretofore

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been selected for inclusion in the regim n, the model can be accessed in the computer, modified to include a scalpel, and recompiled to present a revised model. Preferably, in the present method, provision is made for electing to either delete the first model and substitute the revised model therefor, or to retain the revised model only for purposes of relating the revised treatment regimen to a given patient, for example. In the latter event, the original model would remain stored in the computer for use when next again it was needed in planning the treatment regimen for another patient for the same medical diagnosis.

Within the health care facility, a platform is identified for the treatment regimen for a given medical diagnosis, for example, a Lap Diagnostic with Possible Lap Choly Procedure. A sample compiled master model setting forth a treatment regimen for this medical diagnosis, with conditional objects associated with certain of the objects incorporated in the model is given below as TABLE I:

TABLE I

PART	DESCRIPTION	QPA	INDEX	UOM
PM-511125A	Lap Diagnostic w/Possible Lap Choly Procedure	1	0	
DE100350	List box for Lap/Endo ICD-9 Codes	1	0	
DE21600	Group box for surgeon name/surgeon group	1	0	
DE30105	Check box for emergency procedure & MS pathway	1	0	
DE30122	Check box for conversion to open laparotomy	1	0	
CE-OPRM0620	Laparoscopic Diag/Chole Proc			
SB-DERCART30	Standard Bundle for 30 Gallon TraceCart			
DRTPAK-LAB	TracePak Content Label Stock	1	0	EA
DR56-11099	BOX, TraceCart 20.5 x 20.5 x 35	1	0	EA
DR56-11208	TraceCart Lid w/gaskets & 1bls	1	0	EA
DR66-11168	TraceCart Base. 32" (H) 40 Gal.	1	0	EA

DB-HOS234662	Data Bundle for Lap/Endo Incision			
DE44005	Incision Documentation	1	0	
DE44102	Trocar Placement Box	1	0	
DE44215	Adhesion Documentation Box	1	0	
DB-HOS13346	Standard Operative Documentation			
DE22980	Blood Pressure Box	1	0	
DE22675	Heart Rate Box	1	0	
DE22855	Skin Condition Box	1	0	
DB-HOS16060	Patient Positioning Documentation			
DE35335	Patient Positioning	1	0	
DE36005	Pressure Point Check	1	0	
DE36458	Grounding Pad Position	1	0	
SB-DER3453007	Lap Diag/Chole Bundle for OR			
DR28-0500	Probe, Irri/Aspirw/Tubing	1	0	EA
DR50-3218P	Prep Tray	1	0	EA
DR50-9783P	Basic Endo Pack	1	0	EA
DR71-1201	Suction Canister Set, 1500cc	1	0	EA
SB-OMI2353872	Lap Diag/Chole Bundle for OR			
OM23000A184H	Suture Silk 3-0 12-18" Ties	1	0	EA
OM3642089223	Drape Lap/Cholecystect			
OM3642090042	Goen Surgical Stri w/twl XLG	2	0	EA
SB-HOS20883	Surgeon Preference for Lap Diag/Choly			
CR1010--if([Surgeon]="Jones")				
SB-HOS23835	Jones Lap Diag/Choly Pref			
HO33723	Reinforced Gown w/twl XLG	1	0	EA
HO33857	Safety Shield	1	0	EA
HOLKR12	KT Laparoscopic Chole	1	0	EA
else				
SB-HO823837	Default Doctor Preference Item			
HO33750	Gown, Disposable SMS	1	0	EA
HO885665	KT Laparoscopic Chole	1	0	EA
CR1020--if ("'51.23' found in [ICD-9])				
SB-OMI2803538(C)	Conversion Bundle to Lap Choly			
OM22990EEP05	Spatula Tip Electrode	1	0	EA
OM22990EAA05	Clip Applier, Medium	1	0	EA
SB-HOS2307857	Hospital-Provided Supply Bundle for OR			
HO76039210	Basin, Stainless Steel, 7000cc	1	0	EA
HO76844822	Reusable Instrument Set (minor abdominal)	1	0	EA
PB-BUR26332736	Bargain-Supplied Pharmacy Items			
RGL2700	Albumen (100mg)	1	0	EA
LB-HOS2803852	Labor Bundle (circulating anesthesiologist)			
LR10190	Anesthesiologist	10	0	MN
LB-HOS3352835	Labor Bundle (lap/choly team)			
LR10750	Video Operator	45	0	MN
LR10800	Operating Room Registered Nurse	45	1	MN
LR10800	Operating Room Registered Nurse	45	0	MN
OB-HOS3293465	Overhead Bundle for Care Event			
OH0260	Operating Room Suite	45	0	MN
EQ0575	Laparoscopic Video Cart	45	0	MN
CR1000-- if ([Emergency Conversion]=TRUE)				
CE-OPRM04452	Emergency Laparotomy Conversion			
SB-HOS722834	Laparotomy Conversion Bundle			
HO7446552	Open Laparotomy Pack	1	0	EA
HO721233	Laparotomy Sheet	1	0	EA

Where:

PW=	pathway	CR=	conversion
DE=	date event	PB=	pharmacy bundle
CE=	care event	BG=	
SB=	supply bundle	LB=	labor bundle
DB=	data bundle	LR=	labor resource
DR=	supplier identification	OB=	overhead bundle
OM=	supplier identification	OH=	overhead
HO=	hospital-supply	HOS=	hospital provided
EQ=	equipment		

A sample compiled model with conditional objects compiled to the care event level, for the same medical diagnosis as in

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TABLE I, is given below as TABLE II:

TABLE II

PART	DESCRIPTION	QPA	INDEX	UOM
PW-S11125A	Lap Diagnostic w/Possible Lap Choly Procedure	1	0	
DE100350	List box for Lap/Endo ICD-9 Codes	1	0	
DE21500	Group box for surgeon name/surgeon group	1	0	
DE30105	Check box for emergency procedure & NS pathway	1	0	
DE30122	Check box for conversion to open laparotomy	1	0	
CE-OPRM0620	Laparoscopic Diag/Chole Proc	1	0	EA
DRTPAK-LAB	TracePak Content Label Stock	1	0	EA
DR56-11099	Box, TraceCart 20.5 x 20.5 x 35	1	0	EA
DR56-11208	TraceCart Lid w/gaskets & lbls	1	0	EA
DR56-11359	TraceCart Base, 32" (H) 40 Gal.	1	0	
DE44005	Incision Documentation	1	0	
DE44102	Trocar Placement Box	1	0	
DE44235	Adhesion Documentation Box	1	0	
DE22950	Blood Pressure Box	1	0	
DE22675	Heart Rate Box	1	0	
DE22856	Skin Condition Box	1	0	
DE35335	Patient Positioning	1	0	
DE36005	Pressure Point Check	1	0	
DE36458	Grounding Pad Position	1	0	EA
DR28-0500	Probe, Irri/Aspirw/Tubing	1	0	EA
DR50-3218P	Prep Tray	1	0	EA
DR50-97839	Basic Endo Pack	1	0	EA
DR73-1101	Suction Canister Set, 1500cc	1	0	EA
OM2J000A184H	Suture Silk 3-0 12-18" Ties	2	0	EA
OM3642089223	Drape Lap/Cholecystect	1	0	EA
OM3643090042	Coen Surgical Stri w/twl XLG	1	0	EA
HO33725	Reinforced Gown w/twl XLG	1	0	EA
HO33857	Safety Shield	1	0	EA
HOLKR1KT	Laparoscopic Chole	1	0	EA
HO76839210	Basin, Stainless Steel, 7000cc	1	0	EA
HO76844822	Reusable Instrument Set (minor abdominal)	10	0	MN
EG12700	Albumen (100mg)	45	0	MN
LR10190	Anesthesiologist	45	1	MN
LR10750	Video Operator	45	0	MN
LR10800	Operating Room Registered Nurse	45	0	MN
LR10800	Operating Room Registered Nurse	45	0	MN
OH0250	Operating Room Suite	45	0	MN
EQ0575	Laparoscopic Video Cart	1	0	EA
CE-OPRM04452	Emergency Laparotomy Conversion	1	0	EA
HO7448552	Open Laparotomy Pack	1	0	EA
HO721233	Laparotomy Sheet			

A sample compiled model with conditional objects compiled to the resource bundle level is given below as TABLE III:

TABLE III

PART	DESCRIPTION	QPA	INDEX	UOM
PW-S11125A	Lap Diagnostic w/Possible Lap Choly Procedure	1	0	
DE100350	List box for Lap/Endo ICD-9 Codes	1	0	
DE21500	Group box for surgeon name/surgeon group	1	0	
DE30105	Check box for emergency procedure & NS pathway	1	0	
DE30122	Check box for conversion t open laparotomy	1	0	

CB-OPRMD620	Laparoscopic Diag/Chole Proc				
SB-DERCART30	Standard Bundle for 30 Gallon Tracecart				
DRTPAK-LAB	TracePak Content Label Stock	1	0	EA	
DR56-11099	Box, TraceCart 20.5 x 20.5 x 35	1	0	EA	
DR56-11208	TraceCart Lid w/gaskets & lbls	1	0	EA	
DR56-11359	TraceCart Base, 32" (H) 40 Gal.	1	0	EA	
DB-HOS234662	Data Bundle for Lap/Endo Incition				
DE44005	Incision Documentation	1	0		
DE44102	Trocar Placement Box	1	0		
DE44235	Adhesion Documentation Box	1	0		
DB-HOS13346	Standard Operative Documentation				
DE22950	Blood Pressure Box	1	0		
DE22675	Heart Rate Box	1	0		
DE22855	Skin Condition Box	1	0		
DB-HOS15060	Patient Positioning Documentation				
DE36335	Patient Positioning	1	0		
DE36005	Pressure Point Check	1	0		
DE36458	Grounding Pad Position	1	0		
SB-DER3453807	Lap Diag/Chole Bundle for OR				
DR30-0500	Probe, Irri/Aspirv/Tubing	1	0	EA	
DR50-3218P	Prep Tray	1	0	EA	
DR50-9783P	Basic Endo Pack	1	0	EA	
DR71-1101	Suction Canister Set, 1500cc	1	0	EA	
SB-ONI2353872	Lap Diag/Chole Bundle for OR				
ON23000A184H	Suture Silk 3-0 12-18" Ties	1	0	EA	
ON3642089223	Drape Lap/Cholecystect				
ON3642090042	Goen Surgical Stri w/tvl XLG	2	0	EA	
SB-HOS20883	Surgeon Preference for Lap Diag/Choly				
SB-HOS22835	Jones Lap Diag/Choly Pref				
HO33750	Gown, Disposable SMS	1	0	EA	
HO885665	KT Laparoscopic Chole	1	0	EA	
SB-HOS3307857	Hospital-Provided Supply Bundle for OR				
HO76839218	Basin, Stainless Steel, 7000cc	1	0	EA	
HO76844822	Reusable Instrument Set (minor abdominal)	1	0	EA	
DB-HDR26332736	Surgain-Supplied Pharmacy Items				
BG12700	Albumen (200mg)	1	0	EA	
LB-HOS2883852	Labor Bundle (circulating anesthesiologist)				
LR10190	Anesthesiologist	10	0	MN	
LB-HOS3352835	Labor Bundle (lap/choly team)				
LR10750	Video Operator	45	0	MN	
LR10800	Operating Room Registered Nurse	45	1	MN	
LR10800	Operating Room Registered Nurse	45	0	MN	
OB-HOS3293465	Overhead Bundle for Care Event				
OH0250	Operating Room Suite	45	0	MN	
EQ0575	Laparoscopic Video Cart	45	0	MN	

With reference to TABLE I, the sample compiled master model for the Lap Diagnostic with Possible Lap Choly Procedure includes an identifier, namely "PW-511125A" for the platform at the first level. At the second level there are located various data objects identified as DE100350, DE21500, DE30105 and DE30122. Each data object has assigned to it a description (a property), and/or other properties such as, frame size, QPA, and an index. These data objects are global and therefore are modeled at the platform level. At the second level of the model also are the

care events CE-OPRM0620 and CE-OPRM04452. The depicted care events may have no properties assigned to them, but they commonly do have associated therewith a plurality of supply objects as are set forth in TABLES I, II and III. The identifier for each object may itself provide information relating to the object, such as the indentity of the supplier of a disposable supply items, the reorder number for the supply items, etc.

By way of example, care event CE-OPRM0620 has associated with it a supply bundle object SB-DERCART30. In turn this supply bundle object has associated therewith supply objects DRTPAK-LAB; DR56-11099; DR56-11208; and DR56-11359. Supply bundle object SB-DERCART30 has assigned to it a QPA of "1", an index of "0" and a unit of measure (UOM of "EA") (EA=each"). The supply objects associated with SB-DERCART30 also have QPA, index and UOM properties assigned to them.

The same supply objects as set forth in TABLE II are found in TABLE I, with the difference that in TABLE I, certain of the supply objects are bundled into a supply bundle which is itself assigned a unique identifier. In TABLE III, the sample compiled model is compiled to the supply bundle level. Therefore, TABLE II provides information as to the individual supply objects which have been selected to be associated with the Lap Diagnostic with Possible Lap Choly Procedure, and TABLE III shows these same supply objects, but with certain of the supply objects being bundled into supply bundles. The contents of each supply bundle are given in TABLE III for purposes of ordering, inventorying and/or delivery to a use site, of the supplies, for example.

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The QPA property represent the quantity per assembly of each listed resource. That is, what quantity of the listed resource is to be employed in the modeled treatment regim n, based upon the unit of measure (UOM) assigned to the resource.

The index property, in the present method serves to differentiate which one of two (or more) identical objects is to be associated with another object. In the example presented in TABLES I - III, all the listed objects which have a UOM measured as "EA" (each) are assigned an index of "0". The "0" index indicates that the indexed object is to be included in the given model in an amount indicated by the UOM property assigned to the object. Where the UOM is in units of time, however, such as where including in the model an Operating Room Registered Nurse (LR10800), in some procedures it is required that there be an option of including in the model two or more nurses. If, as in the present Lap Choly example, the surgical aspect of the procedure is to require 45 minutes of time, then it becomes necessary to be able to select one nurse for 45 minutes or two (or more) nurses for 45 minutes each. In the present example, the capability is provided for by listing, as individual labor objects, two (or more) identical Operating Room Registered Nurses (e.g. LR10800), each having a UOM of 45 minutes assigned to them. In developing the model, if one nurse is to be required, only one of the LR10800's will be assigned a "0" index, the other listed LR10800's being assigned an index of "1". If more than two nurses are listed as potential objects to be included in the model, but are not required, these non-required LR10800's are also assigned an index of "1". If, on the other hand, more than one nurse is required for the procedure, more than one LR10800

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will be assigned an index of "0". This, or a similar technique, is required to ensure that only one nurse for 45 minutes is selected as opposed to one nurse for 90 minutes.

ENSDOCID: <WO__9740463A1_1_>

WHAT IS CLAIMED:

Claim 1. A method for the administration of health care resources within a health care facility on a per procedure basis employing a computer generated model, comprising the steps of

establishing a platform which identifies a medical treatment procedure that is to be associated with a given medical diagnosis, including assigning the procedure a unique identifier which is suitable for manipulation employing a computer,

assigning to the platform one or more properties, each of which is specific for the medical treatment procedure, including assigning to each property a unique identifier which is suitable for manipulation employing a computer,

identifying a plurality of care events to be associated with the platform, including assigning to each care event a unique identifier which is suitable for manipulation employing a computer,

identifying a plurality of resources to be associated with each care event, including assigning to each resource a unique identifier which is suitable for manipulation employing a computer,

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within a computer, treating the platform, the care events and the resources as individual objects, and linking one or more care event objects with the platform, and one or more of the resource objects with one or more of the care event objects.

compiling, within the computer, a model of the medical treatment procedure and its associated care events and resources, and

providing a visual representation of the model.

Claim 2. The method of Claim 1 and including the steps of identifying one or more conditional factors to be associated with the platform, or with one or more of the care events, or with one or more of the resources.

presenting to a health care worker an option of selecting one or more of the conditional factors to become a nonconditional factor to be associated with the model,

associating a nonconditional factor with its platform, care event or resource so that the nonconditional factor becomes an integral part of the model.

Claim 3. The method of Claim 2 wherein the step of presenting to a health care worker an option of selecting one or more of the conditional factors includes providing, on a monitor screen associated with a computer, a visual

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representation of conditional factors associated with the platform, or with one or more of the care events, or with one or more of the resources, including providing means for selecting one or more of the conditional factors as being applicable to the patient, or to the medical treatment procedure associated with the patient, or the one or more of the care event objects, or to one or more of the resource objects.

Claim 4. The method of Claim 1 including the steps of identifying a patient and associating the patient with the platform,

identifying one or more data items which are representative of a medical condition of the identified patient, and

collecting data associated with an identified data item, and

incorporating the collected data into the model.

Claim 5. The method of Claim 1 and including the steps of

assigning to each resource a cost value and a charge value, and

during the course of providing the medical treatment procedure, recording any variations from the model, and

ENSDOCID: <WO__9740463A1_>

following completion of the treatment procedure, compiling a report that visually displays that cost to the health care facility of providing the treatment and/or the charge to be assessed for the providing of the treatment procedure.

Claim 6. A method for the administration of health care resources within a health care facility on a per patient per treatment procedure basis for a given medical diagnosis, and including the provision of information and/or instructions to various health care providers associated with the health care relating to the carrying out of their functions in connection with the provision of the health care to be provided the patient for the treatment procedure comprising the steps of

assigning a unique identifier to the treatment procedure to be associated with the patient, this identifier serving as a platform upon which the treatment procedure may be modeled,

identifying one or more global entities to be associated with the procedure and assigning a unique identifier to each global entity so identified,

identifying one or more care events to be associated with the procedure and assigning a unique identifier to each resource so identified,

BNSDOCID: <WO 9740463A1_L>

identifying one or more resources to be associated with each care event and assigning a unique identifi r to each resource so identified,

correlating the identified global entities, care events and resources with the platform to develop a model of the treatment procedure,

providing a visual representation of the model which is suitable for providing information and/or instruction to each of the health care providers with respect to their respective duties in the carrying out of the procedure associated with the patient.

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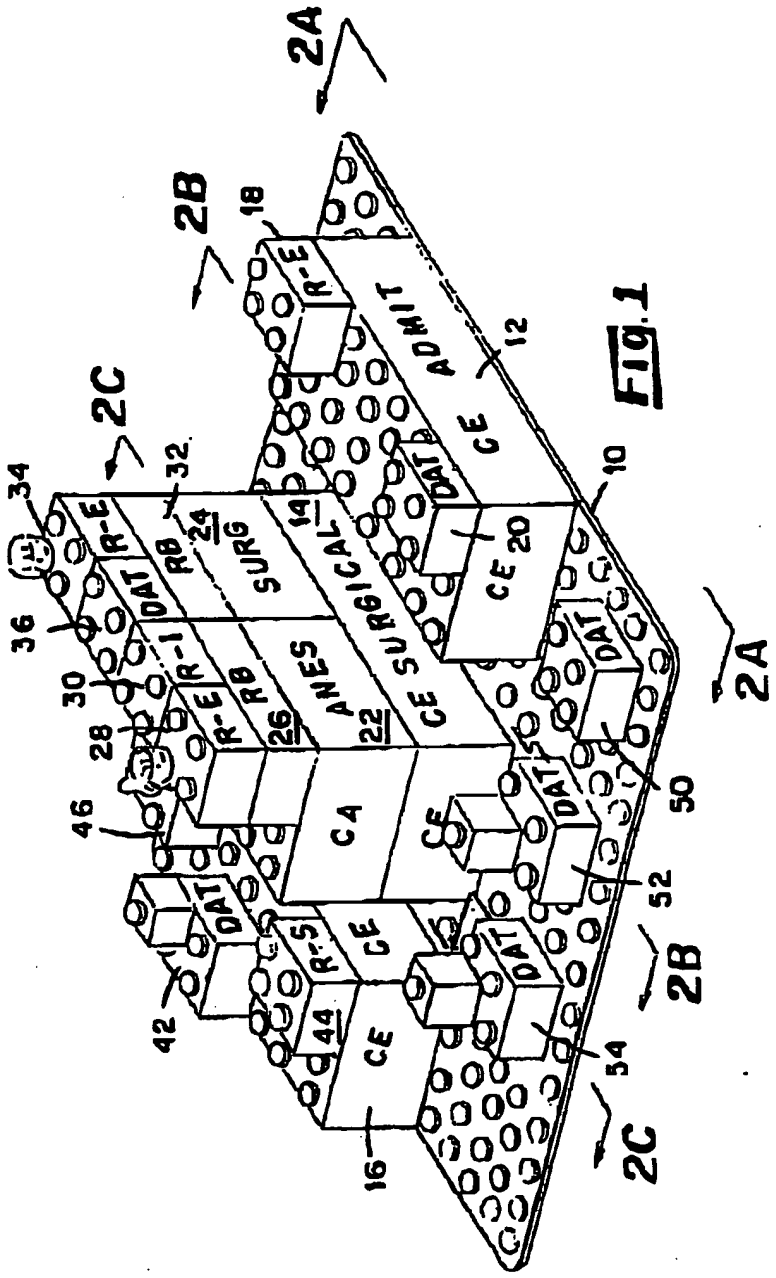
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CE
SURGICAL
ANES
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22
R-I
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16

Fig. 1

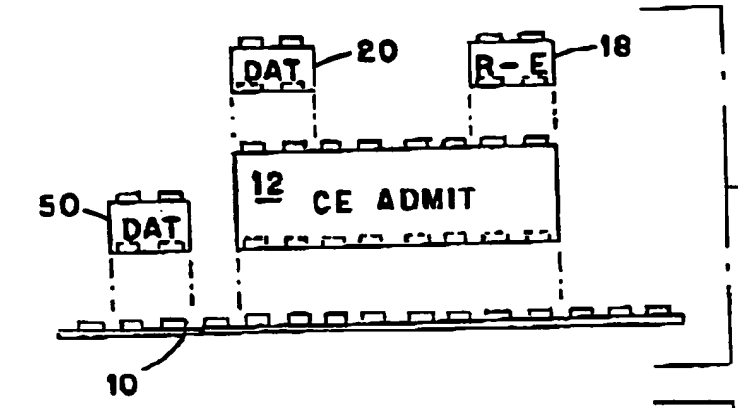

Fig.2A

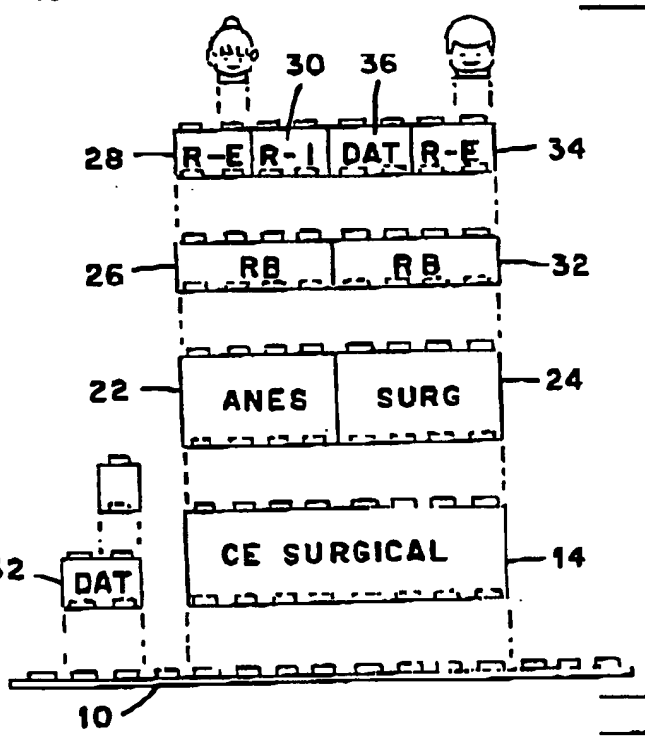

Fig.2B

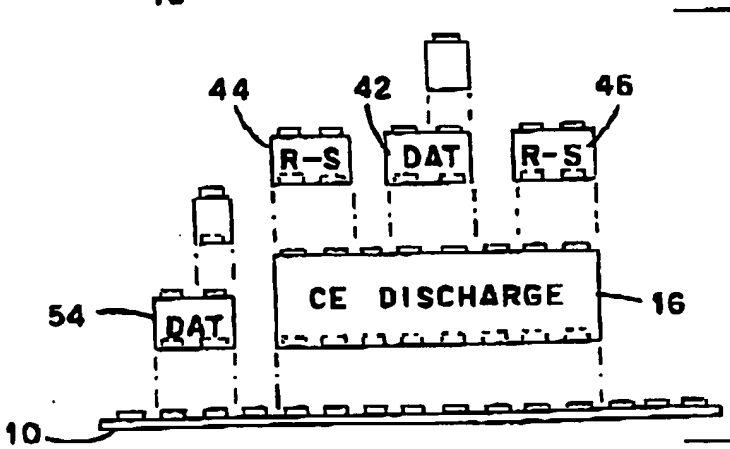

Fig.2C

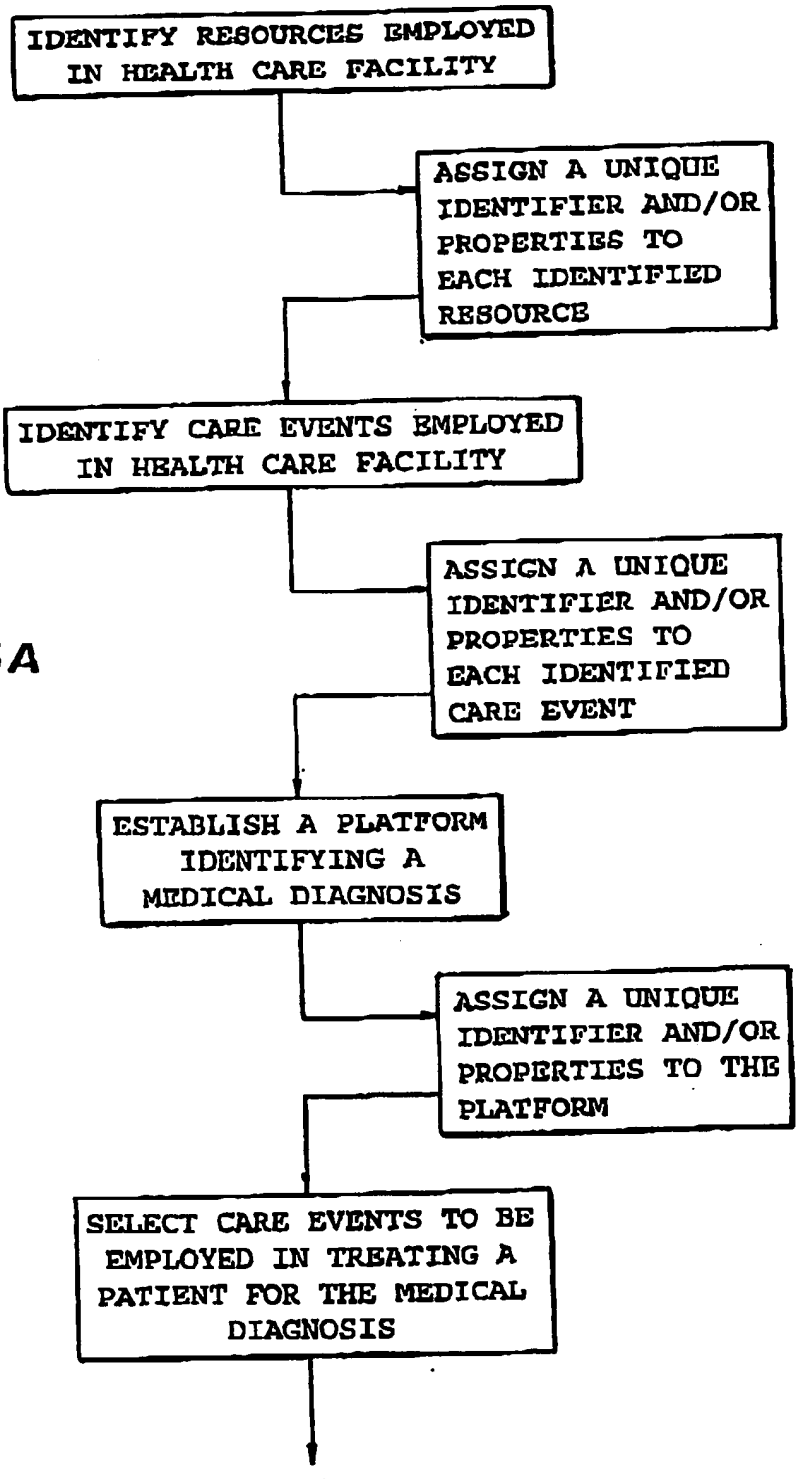
IDENTIFY RESOURCES EMPLOYED IN HEALTH CARE FACILITY
ASSIGN A UNIQUE IDENTIFIER AND/OR PROPERTIES TO EACH IDENTIFIED RESOURCE
IDENTIFY CARE EVENTS EMPLOYED IN HEALTH CARE FACILITY
ASSIGN A UNIQUE IDENTIFIER AND/OR PROPERTIES TO EACH IDENTIFIED CARE EVENT
ESTABLISH A PLATFORM IDENTIFYING A MEDICAL DIAGNOSIS
ASSIGN A UNIQUE IDENTIFIER AND/OR PROPERTIES TO THE PLATFORM
SELECT CARE EVENTS TO BE EMPLOYED IN TREATING A PATIENT FOR THE MEDICAL DIAGNOSIS
TO

Fig.3A

Fig.3B

FROM Fig.3A

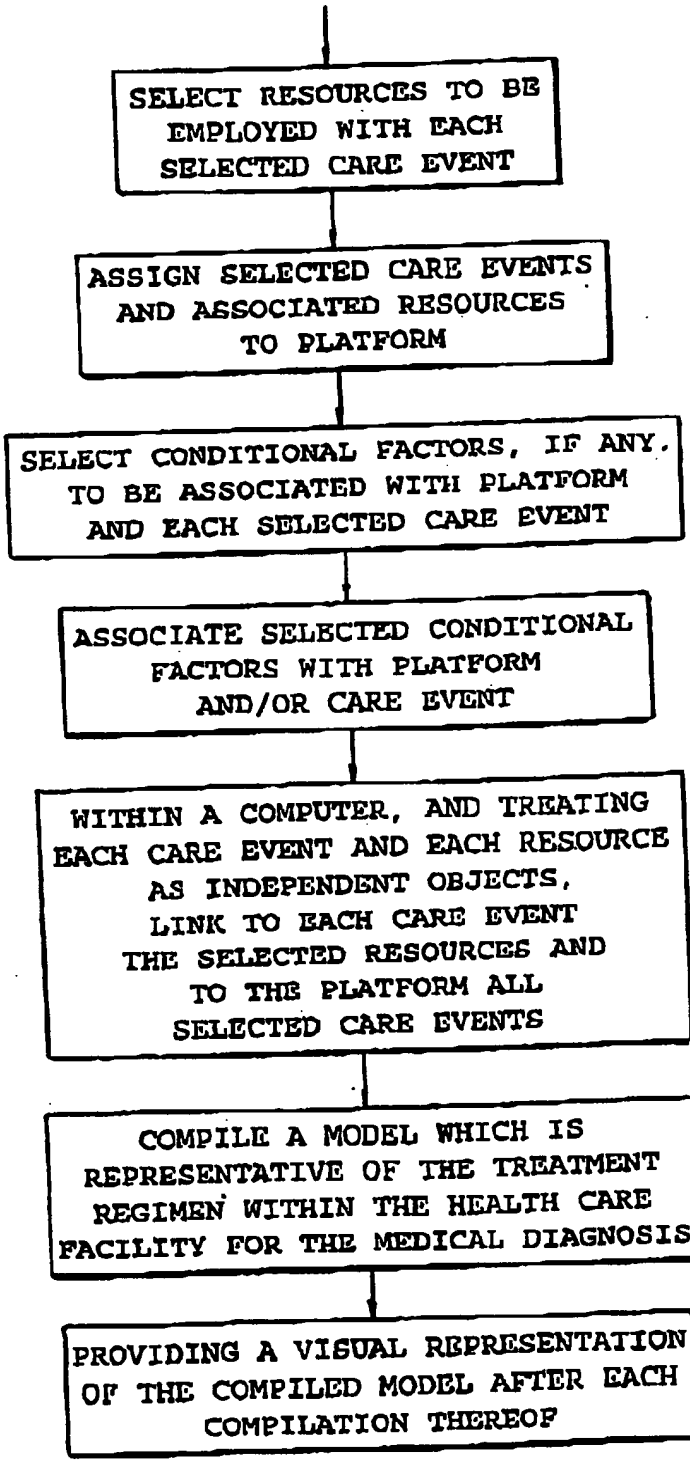

Fig.3B

INTERNATIONAL SEARCH REPORT

International application N .
PCT/US97/06685

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :G06F 159:00; 17/60
US CL :395/203
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 395/202, 203, 207, 208, 209

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,065,315 A (GARCIA et al.) 12 November 1991, abstract; fig. 1 and col. 3, lines 3 to col. 4, line 27	1-6
A	US 5,265,010 A (EVANS-PAGANELLI et al.) 23 November 1993 abstract; col. 2, line 31 to col. 3, line 41; col. 4, line 46 to col. 6, line 17; col. 10, line 54 to col. 16, line 9	1-6
A	US 5,365,425 (TORMA et al.) 15 November 1994, abstract; figures 1 & 4-6; col. 2, line 50 to col. 6, line 24; col. 11, line 26 to col. 13, line 25	1-6
A	US 5,471,382 A (TALLMAN et al) 28 November 1995 abstract; col. 2, line 10 to col. 3, line 13; col. 4, line 6 to col. 9, line 20; col. 54, line 46 to col. 57, line 10	1-6

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
04 AUGUST 1997

Date of mailing of the international search report
16 SEP 1997

Name and mailing address of the ISA/US
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Form PCT/ISA/210 (second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/06685

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,557,514 A (SEARE et al) 17 September 1996 abstract, figs. 1-4; col. 4, line 28 to col. 5, line 6; col. 6, line 6 to col. 13, line 54; col. 19, line 5 to col. 31, line 17	1-6

bnSDOCID: <WO 9740453A1_>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/06695

B. FIELDS SEARCHED
Electronic data bases consulted (Name of data base and where practicable terms used):

APS

search terms: computer modelling/simulation; health care systems; medical procedures; resource allocation/management

ENSDOCID: <WO__9740463A1_I_>